

REMARKS

Claims 18-28, 31-35, and 39-40 are now pending. All claims have been rejected.

Claims 18-21, 24-28, and 31-35 are rejected under 35 U.S.C. § 103(a) as being allegedly obvious over Nielsen in view of Ghani. Claims 22-23 are rejected as obvious over Nielsen in view of Ghani and in further view of Markussen. Claims 39 and 40 are rejected as obvious over Nielsen, Ghani, Markussen in further view of Haarasilta. Applicants submit that a *prima facie* case has not been established for any of the above-identified claims for the following reasons.

1. A Granulate Having 6,000 FTU per Gram Is Not Disclosed in Any Reference, Nor is a Divalent Cation

As described in the Response dated December 3, 2004, Nielsen does not disclose with particularity a granulate having phytase activity of at least 6,000 FTU/gram. Nielsen contemplates that phytase activity of the animal feed additive described therein can be about 2,000 to about 50,000 per gram of the total composition, but does not disclose whether this amount relates to an amount in a granulate, a liquid composition, or in the enzyme itself. Even if, for the sake of argument, Nielsen disclosed this amount with respect to granulates, there is no motivation to select a subset of compositions, namely, granulates, with a reasonable expectation that such a granulate would have superior pelleting stability, as described below in Section 2 in more detail.

In addition, with respect to claim 20, the cited references do not disclose a divalent cation. The Office points to a disclosure of Ghani of divalent cation such as in ammonium sulfate. (Please see the Office action mailed February 24, 2003, page 6, first full paragraph.) However, ammonium (NH_4^+) is monovalent, not divalent. Thus, the Office has not established that all of the elements of claim 20 have been found in the cited references.

2. No Motivation to Select a Granulate Having a Phytase Activity of At Least 6,000 FTU per Gram; No Motivation to Substitute Ghani's Carrier with Nielsen's Carrier; No Motivation to Combine References

Applicants argued above that Nielsen does not teach a granulate containing 6,000 FTU per gram phytase. The Office has not established that Nielsen provides motivation to select a granulate from the different forms of Nielsen's composition, nor to select a granulate having at least 6,000 FTU per gram from different embodiments. This argument is found on page 6 of the Response to Office Action dated December 3, 2004. Although Nielsen contemplates ranges of phytase activity from about 200 to 50,000 FYT/gram, there is no indication whether this range applies to a solid composition, a liquid composition, or simply the enzyme itself. Moreover, Nielsen's preferred range of the undefined additive is less than 6,000 FTU/gram.

Further, Nielsen does not disclose how a skilled artisan can obtain a granulate having such a concentration of phytase as claimed. In contrast, the present application and claims describe such a means to obtain the granulate by using a liquid having at least 14,000 FTU/gram phytase activity. Applicants have explained that Nielsen incorporated by reference a method to make a phytase-containing liquid (not a granulate) having a maximum phytase activity of about 5,600 U/ml. Upon drying, the maximum activity of Nielsen's granulate was about 5,280 U/g, as calculated on page 7 of the Response dated December 3, 2004. Thus, Nielsen does not lead one to a granulate having a phytase activity of at least 6,000 FTU/gram, as claimed, nor does Nielsen enable a skilled artisan to make such granulates.

Furthermore, there is no motivation to substitute Ghani's carrier with the carrier described in Nielsen. According to the Final Office action mailed November 3, 2003, page 3, paragraph 8, the Office acknowledged that Nielsen does not teach an "edible carbohydrate polymer," and thus combined Nielsen with Ghani (claims 18 and 19 now define a "non-fibrous solid carrier"). The object of Ghani's invention is to provide an agglomeration process using fluid bed spraying and drying to prepare low dust microgranules. A "suitable carrier" for that invention is described in column 2, lines 26-34. The object for Ghani's carrier is for the enzyme to attach to the

carrier, as described in column 4, lines 5-6 therein. The granulate is then further processed. There is no motivation in Ghani or any of the other cited references to select non-fibrous solid carriers over fibrous carriers, and further there is no motivation to substitute Ghani's carriers with the carriers in Nielsen's composition. In the Office action mailed February 24, 2003, the Office does not provide proper motivation to modify Nielsen's disclosure. According to page 7 thereof, the Office appears to suggest that adding nutritional value to the granulate would provide motivation to combine the references, but such motivation is not found in the references themselves. The Office also alleges that phytases aid in the digestion of phytate-containing substances, but it is not clear how such provides motivation to modify Nielsen's disclosure. Similarly, the Office has not provided motivation to select a component from Markusson or Haarasilta to arrive at the claimed invention. Thus, *prima facie* obviousness has not been established because the Office has not established proper motivation to combine and modify the references.

3. No Reasonable Expectation of Success

Granulates having at least 6,000 FTU/gram phytase activity as claimed have superior stability after pelleting. Example 10 describes the results of three samples which had 610 FTU/gram, 4170 FTU/gram, and 6830 FTU/gram phytase activity. Even though the latter two formulations had the closest activity, the highest activity formula (6830 FTU/gram) gave much higher pelleting stability, namely 6% higher than for the 4170 FTU/gram composition. Although there was a much greater amount of difference between the first two compositions (610 versus 4170 FTU/gram), only a 3% increase in pelleting stability was observed between these compositions. These results are found on page 22, lines 24-29 of the present application. None of the references suggest that a granulate having the phytase content as claimed would likewise produce a granulate having a much higher pelleting stability. Thus, a skilled artisan would not have been led to select the granulates having the amount of phytase as claimed with the expectation that higher pelleting stability could be achieved.

4. At a Minimum, There Is Sufficient Rebuttal Evidence

Applicants respectfully submit that, even if, for the sake of argument, all of the elements as claimed were present in the cited references, and there was motivation to select a particular species with the expectation that higher pelleting stability would result, the Office has not considered unexpected results. The granulates having a higher pelleting stability is unexpected because the references do not disclose the relationship between phytase activity levels and pelleting stability. Thus, the advantages of such a composition are not expected. Further, as Nielsen does not enable a skilled artisan to make granulates having the claimed phytase activity, the resulting granulates as claimed could not be readily prepared by a skilled artisan.

Thus, applicants submit that *prima facie* obviousness has not been established because of the reasons set forth in Sections 1-3 above. Furthermore, even if the Office did establish these elements, the Office did not consider rebuttal arguments.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicants petition for any required relief including extension of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 251502008600. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

By SAR

Carolyn A. Favorito

Registration No.: 39,183

MORRISON & FOERSTER LLP

3811 Valley Centre Drive

Suite 500

San Diego, California 92130-2332

(858) 720-5195